

REMARKS

The abstract has been amended as requested.

Claim Rejection Under 35 USC 102:

Claims 1, 2 and 5-10 were rejected as allegedly anticipated by Scanlan et al. Claims 3 and 4 were indicated as having allowable subject matter.

In the light of the rejection, independent claims 1, 9 and 10 have been amended to clarify the invention and its patentable distinction from Scanlan et al. (U.S. Patent No. 6,441,620).

With regard to claim 1, the key to the present invention is to run a plurality of baseline processes of different types prior to fault classification. This is step (a) of claim 1. In the embodiment these different types of baseline processes are run respectively under process conditions, inert conditions and plasma-less conditions, but other baseline process types are possible depending on circumstances. These

baseline processes provide RF power Fourier components as reference data for each baseline process type. This is step (b) of claim 1. Then, when a fault is to be classified, one or more of the original baseline process types is repeated, according to a decision tree, to classify the fault. This is step (c) of claim 1. Using the particular types of baseline process chosen in the embodiment, as identified above, it is possible to determine if the fault lies with the process chemistry, the plasma or the chamber hardware. Note that repeating the baseline process(es) according to the decision tree, i.e. step (c), only takes effect after a fault has been detected - the decision tree is not in itself used to detect a fault, simply to classify it. Claim 1 has been amended to make it clear that the plurality of baseline processes which are run prior to fault classification are of different types, and a consequential is amendment made to claim 4.

In summary, the invention claimed in claim 1 runs a plurality of baseline processes of different types to derive reference data for each and, when a fault is to be classified, repeats one or more of the baseline process types according to a decision tree to classify the fault.

This is in complete contrast to Scanlan et al., whose disclosure is best summarized in Fig. 4 of U.S. Patent No. 6,441,620. There it will be seen that, before any fault is detected which needs classification, only a single baseline process is run, step 20. Although it is true that the process input parameters are varied to provide reference data for subsequent fault classification, this does not constitute running a plurality of baseline processes of different types. Rather, a single baseline process is run whose inputs are varied in a controlled way. This distinction is well understood by those skilled in the art.

Still referring to Fig. 4 of U.S. Patent No. 6,441,620, a fault is detected by a "No" output at step 24 (this step corresponds to the same numbered step 24 of Fig. 4 of the present application). However, having detected a fault, only the same single baseline process is run at step 26 as was run at step 20, and the fault is classified by comparing the current data to the reference data. There is no decision tree dependent on the "No" output of step 24 - the process steps are entirely linear between steps 24 and 30 and no decision tree branches are shown or used. The step 30 going back to

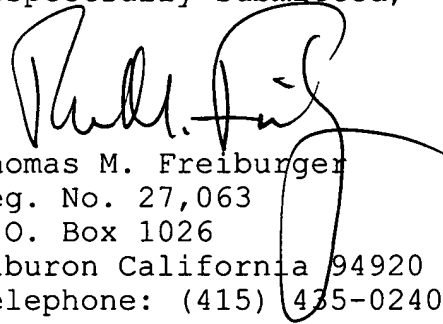
step 22, which the Examiner implies is a decision step, is merely a return to the monitoring process, the fault assumed to have been fixed. A step needs at least two alternative outcomes to constitute a decision step, and none of the boxes 26 to 30 has more than one output. As stated previously, step (c) of claim 1 requires that the baseline process(es) be repeated according to a decision tree only after a fault has been detected. Thus, in Scanlan et al., the decision at step 24, which determines the presence of a fault, cannot form part of the decision tree claimed in claim 1.

For these reasons it is submitted that amended claim 1 is patentably distinguished from U.S. Patent No. 6,441,620.

Claim 9 relates to the comparison of two different plasma chambers using essentially the same technique as claimed in claim 1. The same amendments have been made to claim 9 as to claim 1. Nothing in Scanlan et al. discloses or suggests in any way whatsoever that the technique can be used to compare chambers, and in fact Scanlan et al. is completely silent on the matter. Claim 10 has also been amended the same as claim 1. Accordingly, it is submitted that claims 9 and 10 are likewise patentably distinguished from Scanlan et al.

For the above reasons, this application is believed in condition for allowance. Favorable action is solicited. However, if any issue remains, a telephone call to the undersigned would be appreciated.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Th. M. Freiburger', with a large, stylized flourish extending from the end of the signature.

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